

REMARKS

Claims 1-23 are pending in this application, of which Claims 1, 3, 6, 8, 11, 13, 16 and 20 are in independent form. Claims 1, 3, 6, 8, 9, 11, 13, 16 and 20 have been amended to define still more clearly what Applicants regard as their invention.

As requested by the Examiner, a Submission of Corrected Drawings is being submitted herewith.

Claims 1, 3, 5, 6, 8, and 10 were rejected under 35 U.S.C. § 102(a) as being anticipated by Applicant's Admitted Prior Art ("AAPA"), and as being anticipated by U.S. Patent 6,133,984 (Deguichi et al.). In addition, Claims 2, 4, 7 and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA in view of U.S. Patent 5,581,295 (Prowak); Claims 11, 13 and 15, as being unpatentable over AAPA in view of U.S. Patent 6,052,141 (Takeuchi); Claims 12 and 14, as being unpatentable over AAPA in view of *Prowak* and *Takeuchi*; and Claims 16-23, as being unpatentable over U.S. Patent 5,687,002 (Itoh) in view of *Takeuchi*.

As is described in the application, the present invention is intended to provide a solution to the problem of shifts in light output among light-emitting elements of an array of such elements that conventionally make it difficult or impossible to perform adequate correction of the output from the array.

Independent Claim 1 is directed to a recording control apparatus which performs recording on a recording medium by using a recording head, and the apparatus comprises recording head, which includes at least one recording element array in which plural recording elements are aligned along a predetermined direction, and a driving

correction table which includes pixel correction data for correcting a recording driving characteristic of each recording element constituting the recording element array by the pixel unit of image data, and in which the pixel correction data is provided corresponding to plural lines of the image data in a sub-scan direction. Also provided are driving control means which modify a recording driving time of each recording element of the recording element array by the pixel unit, according to switching of the correction data for each line based on the driving correction table including the pixel correction data of the plural lines.

According to the *AAPA* (Applicant's Admitted Prior Art), uniform exposure is acquired for in-chip light emission unevenness (i.e., light quantity unevenness) common to entire chips by modifying a light emission time for each of 128 pixels in one chip.

Deguchi relates to an image formation apparatus which includes means for storing plural recording energy control units, means for discriminating kinds of recording materials, and means for changing setting of the recording energy control unit in response to information obtained by the discrimination means. Thus, when an image is formed on the recording material by using recording elements, an image which is excellent in continuous gradation can be obtained even with different kinds of photosensitive material are used.

Prowak relates to a double buffer which stores data in a non-impact printer consisting of plural recording elements.

Takeuchi relates to a laser beam printer which forms a gradation image. In the laser beam printer, the pulse width of a modulation signal for driving a laser element is scattered to some extent, and also, driving threshold and current-output light characteristic

of the laser element are scattered to some extent. Thus, the pulse width of an output laser beam is scattered, as a result of which a halftone output becomes unstable. To prevent this, the input image data 32 is converted into the modulation signal 33 by the modulation circuit 22, the converted modulation signal 33 is input to the laser driving circuit 5, and the laser diode 6 is driven by the laser driving circuit 5, thereby stabilizing light intensity. Light emission intensity of the laser diode 6 is monitored by the monitor circuit 29, the output of the monitor circuit 29 is integrated by the correction circuit 25 to obtain an integrated light amount, and integrated light amount control is performed based on the obtained integrated light amount. That is, in the *Takeuchi* apparatus, a gain of the D/A converter 23 and offset of triangular wave generated by the triangular wave generator 24 are set.

However, the *AAPA* and the other cited references merely show the correction of one line. That is, neither *AAPA*, *Deguchi*, *Prowak* nor *Takeuchi* discloses the features of Claim 1 relating to "having correction values of plural lines" and "switching the correction value for each line". According to these important features, the correction data is available for plural lines and the correction data is switched for each line, as a result of which correction resolution is reduced. Moreover, the light amount correction resolution is not limited to a system clock period of the light emission time control circuit, and so the light amount correction of higher resolution can be performed, and also non-continuity and sense of discomfort for the densities appearing at a density-level change point, an excessive correction point and the like can be improved. Thus, it is possible to generate a remarkably high-precision output image as compared with the case of having correction data for only one line and performing correction based on this correction data.

Applicants submit that this significant effect of the apparatus of Claim 1 cannot at all be obtained from *AAPA*, *Deguchi*, *Prowak* and *Takeuchi*, even if all four are combined (and assuming that such combination would be permissible). Accordingly, Claim 1 is believed to be clearly allowable over those references.

Similarly, independent Claim 3 is directed to a recording control apparatus which performs electrophotographic recording by using a recording head arranged in a main scan direction perpendicular to a movement direction of a recording medium. The recording control apparatus comprises the recording head, which includes at least one recording element array in which plural recording elements are aligned along the main scan direction, and a light quantity correction table, which includes pixel correction data for correcting a light emission characteristic of each recording element constituting the recording element array by the pixel unit of image data, and in which the pixel correction data is provided corresponding to plural lines of the image data in a sub-scan direction. Also provided are driving control means which modify a light emission driving time of each recording element of the recording element array by the pixel unit, according to switching of the correction data for each line based on the light quantity correction table including the pixel correction data of the plural lines.

Claim 3 is believed, therefore, to be clearly allowable over those four references for the same reasons as is Claim 1.

Each of the other independent claims is similar to Claim 1 in respect of the features discussed above, and each is therefore deemed also to be allowable over those four references.

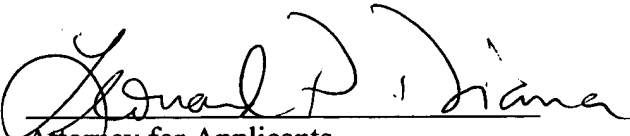
A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, favorable reconsideration and the early passage to issue of this application are respectfully requested.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,


Attorney for Applicants

Registration No. 29,286

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
NY_MAIN 426033 v1